

NATIONAL UNIVERSITY OF IRELAND, GALWAY.
Ollscoil na hÉireann, Gaillimh.

Autumn Examinations, 2002.

Second Medical Examination
BIOCHEMISTRY (BI 202)

External Examiner: Dr. Iain Mowbray

Time allowed: Three hours

Please attempt **five** of the following:

1. Draw a labelled diagram of a typical animal cell. Describe the structure and functions of the endomembrane system.
2. Give an account of the factors that maintain the three-dimensional structures of proteins.
3. What is the genetic code? Explain how it is used in the process of protein synthesis in cells.
4. Write notes on **two** of the following:
 - a. Vitamin A and the visual process
 - b. The electron transport chain
 - c. Vitamin D
5. Using diagrams, write an essay on triacylglycerols.
or
Describe the major serum lipoproteins and their important structural features.
6. Describe the main structural and biochemical differences between monosaccharides and oligosaccharides, and outline the biochemical basis of *Galactosemia* and *Lactose Intolerance*.
or
Write an essay on gluconeogenesis. Include the reactions, regulation and importance of this pathway in human metabolism.
7. Outline the role of amino acids as precursors of important biological biomolecules such as hormones and neurotransmitters.
8. Describe the 'Sanger' chain termination method of DNA sequencing.